

WHAT IS CLAIMED IS:

1. An optical scanner for reading indicia comprising:

5 (a) a beam generator and scanner for producing a scanning light beam and directing said light beam toward an indicia to be read;

(b) a light detector; and

10 (c) a collection mirror for receiving reflected light, the collection mirror having at least first and second segments of differing optical properties whereby said first segment reflects toward the detector light received from an indicia at a first working range from the scanner and said second segment reflects toward the detector light received from an indicia at a second, different, working range.

15 2. An optical scanner according to Claim 1 wherein said first segment has a first focal length and said second segment has a second, different, focal length.

3. An optical scanner according to Claim 1 wherein said first segment has a first optical axis and said second segment has a second, different, optical axis.

4. An optical scanner according to Claim 1 wherein said first segment has a first optical curvature and said second segment has a second, different, optical curvature.

5 5. An optical scanner according to Claim 1 wherein said first and second segments are contiguous.

6. An optical scanner according to Claim 1 wherein said first and second segments are adjacent to one another, and share a common boundary.

10 7. An optical scanner according to Claim 1 wherein said first segment is circular and wherein said second segment is annular and surrounds said first segment.

15 8. An optical scanner according to Claim 1 wherein said first and second segments are integrally molded.

20 9. An optical scanner according to Claim 1 wherein said first segment reflects toward said detector light received from an indicia whether at the first working range or the second working range; and the second segment reflects toward said detector light received from an indicia only when it is at the first working range.

10. An optical scanner according to Claim 1 including an adjustable mount for altering the alignment of the collection mirror.

5 11. An optical scanner according to Claim 10 wherein the adjustable mount is adjustable in angle in both x and y directions.

10 12. An optical scanner according to Claim 10 wherein the adjustable mount is adjustable in position in both x and y directions.

13. An optical scanner for reading indicia by effecting a scanning motion of a light beam in an x-axis direction across an indicia to be read, said scanner comprising:

15 (a) a laser for producing a light beam of non-circularly-symmetric cross-section, having an x-axis and a y-axis, beam divergence in the x axis being greater than beam divergence in the y axis;

(b) negative beam-shaping optics in the beam for adjusting the y axis divergence independently of the x axis divergence.

20 14. An optical scanner according to Claim 13 wherein the beam-shaping optics comprises a concave part-cylindrical mirror.

15. An optical scanner according to Claim 14 wherein said mirror defines the mirror axis, said mirror axis lying in the x axis direction.

5 16. An optical scanner according to Claim 13 including further beam-shaping optics in the beam for equally adjusting the x and y axis divergence.

17. An optical scanner according to Claim 13 wherein the laser is a gain guided laser.

10 18. An optical scanner according to Claim 13 wherein the laser is an index guided laser.

15 19. An optical scanner according to Claim 13 wherein the beam has an x -waist, at which its x axis dimension is least, and a y -waist, at which its y axis dimension is least, said x waist being located further from the scanner than the y waist.

20 20. An optical scanner according to Claim 19 wherein the negative beam-shaping optics adjusts the spacing between the x and y waists without change in overall magnification.